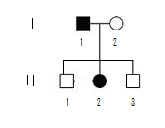
**SBI3U Pedigree Handout Name:**

Example # 1: Determining Genotypes of Individuals

Marfan syndrome is a genetic disorder that affects the body’s connective tissue. Individuals with the syndrome are typically very tall, with disproportionately long limbs and fingers and sometimes have problems with their hearts and eyes.When the dominant allele (M) is expressed, an individual will have Marfan syndrome. People with no defect in the Marfan allele are homozygous recessive (mm). Use the pedigree chart below to determine the genotypes of all individuals, if possible.



STEP 1: Determine which individuals carry a dominant Marfan allele.

STEP 2: Determine which individuals DO NOT carry a dominant Marfan allele.

STEP 3: Determine which individuals are heterozygous or homozygous for the Marfan allele.

Re-draw the pedigree chart with the genotypes of each individual filled in.

Example 2: Determining Modes of Inheritance

Individuals with albinism have a defect in an enzyme that is involved in the production of melanin, a pigment normally found in the skin. The characteristic is governed by only 2 alleles: the normal allele and the albinism allele. Analyze the pedigree chart below and determine whether the albinism allele is a dominant or recessive allele. Then, determine the genotypes of each individual. Use *P* and *p* to represent the dominant and recessive alleles respectively.

STEP 1: Determine if albinism is dominant or recessive.

STEP 2: Determine which individuals carry one copy of the dominant normal allele.

STEP 3: Determine the genotypes of non-albin individuals.

Re-draw the pedigree chart with the genotypes of each individual filled in.

SBI3U TICKET OUT OF CLASS Name:

Phenylketonuria (PKU) is a genetic disorder caused by a recessive allele. Individuals with PKU accumulate phenylalanine in their body. High amounts of phenylalanine lead to delayed mental development. Examine the following pedigree and answer the questions below.

1. How many generations are shown in the pedigree chart?
2. Determine the genotypes of the individuals in the pedigree. Let *p* represent the recessive PKU allele.

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